Overview

Environmental Education Curriculum and Compendium Project

During the last twenty years, a vast number of environmental education materials have been developed in the United States for grades K-12. Produced by a variety of individuals, agencies, and institutions, these curricula are of varying quality and value to the classroom teacher. For teachers, to select and implement suitable curricula is, at best, a demanding, complex, and challenging process. To facilitate and encourage the implementation of high quality curricula, the Office of Environmental Education within the California Department of Education (CDE) instituted the Curricula and Compendia Project. A project advisory group, made up of representatives from a number of state agencies and offices, established the following project tasks: (1) collect curricula through nation-wide searches; (2) evaluate the quality of curricula using an appropriate assessment instrument; (3) publish the results of the evaluations in topic-specific compendia that use a descriptive, ranking format; and (4) develop and implement strategies for distribution of the publications to educators across California.

To make this curriculum review manageable, seven topic areas were logically delineated: Energy Resources, Water Resources, Integrated Waste Management, Air Quality, Human Communities, Plant and Animal Communities, and Terrestrial and Aquatic Habitats (the latter two were later combined to form Natural Communities). The Energy Resources and Water Resources compendia were first published in 1992 and subsequently revised in 1996. The Air Quality and Human Communities compendia were published in 1994, and the Natural Communities compendium was published in 1995. Originally published in 1993, the Integrated Waste Management compendium is the most recent compendium to undergo a revision, resulting in the inclusion of an entirely new section on used oil.

The evaluation phase of the Curricula and Compendia Project utilizes four strategies: (1) development of a "Unifying Concepts of Environment Education" matrix by the CDE to serve as a cornerstone linking the project's six topics; (2) formation of an advisory group of experts for each project to create a topical "Conceptual Matrix" that aligns to the Unifying Concepts; (3) elaboration of topic-specific curriculum evaluation questions that are directly correlated to the "Conceptual Matrix"; and (4) systematic evaluation and ranking of environmental education curricula. When considered together, the conceptual matrices for the six compendia provide an extensive, yet cohesive, foundation upon which curriculum writers, environmental educators, and school administrators can base further instructional materials development in environmental education.

Conceptual Matrices for Environmental Education

The "Unifying Concepts of Environmental Education," the "Conceptual Matrix for Integrated Waste Management," and "Conceptual Matrix for Used Oil" illustrated on the following pages are based upon the CDE environmental education philosophy described in the policy paper, "Point of View on Environmental Education" (1990). The "Unifying Concepts of Environmental Education" serve to provide a conceptual foundation for defining the boundaries of all environmental education. On the "X" axis are found three content descriptors: "The Natural Environment," "The Built Environment," and "The Personal Environment." On the "Y" axis are three process skills that encompass the full range of cognitive and affective change: "Fostering Awareness," "Understanding Concepts," and "Taking Action."

In the conceptual matrices for this compendium, these nine core concepts define the boundaries of, and expectations for, integrated waste management and used oil curricula. Because environmental education is an interdisciplinary subject, the basic concepts of both these topical areas correspond, to some degree, to all of the frameworks and content standards for California public schools and reflect the philosophy of the California Education Code. Framework correlations are documented on page 206 and content standard correlations are documented on page 207.

Unifying Concepts of Environmental Education

CONTENT / PROCESS	**NATURAL ENVIRONMENT** Natural Systems and Interactions	**BUILT ENVIRONMENT** Human Alterations to Natural Systems	**PERSONAL ENVIRONMENT** Citizens' Roles, Responsibilities, Choices, and Actions
FOSTERING AWARENESS AND APPRECIATION OF THE ENVIRONMENT	Environmentally aware citizens cultivate in themselves and others a deep appreciation for natural systems and personal interactions with the natural environment.	Members of sustainable human communities value the natural environment and recognize human-kind's ultimate dependence upon renewable and non-renewable resources.	Individuals appreciate the dependence of their quality of life upon the distribution and quality of natural resources, which may be regulated by laws and influenced by local interests, cultural values, political climate, and international relations.
UNDERSTANDING BASIC ENVIRONMENTAL CONCEPTS	Individuals understand the relationship between the living and non-living components of natural systems.	Humans understand how they alter the natural and built environments. As human populations increase, their impacts on the global environment are more pronounced.	Individuals, communities, and societies understand and honor the symbiotic relationship between the natural and built environments such that a sustainable global community is created.
TAKING RESPONSIBLE ACTIONS TOWARD THE ENVIRONMENT	Individuals take responsible, knowledgeable actions to restore, conserve, and protect the integrity of natural systems and interactions.	Members of sustainable human communities learn from past experiences, acknowledge human limitations, anticipate changes, and develop innovative systems to conserve resources and promote the viability of both the natural and built environments.	Informed citizens influence the development of a sustainable global community through individual and collective actions, civic and organizational responsiveness, lifestyle choices, cultural sensitivity, career selection, regulatory and statutory processes, and economic practices.

Conceptual Matrix for Integrated Waste Management

CONTENT / PROCESS	**NATURAL ENVIRONMENT** Natural Systems and Interactions	**BUILT ENVIRONMENT** Human Alterations to Natural Systems	**PERSONAL ENVIRONMENT** Citizens' Roles, Responsibilities, Choices, and Actions
FOSTERING AWARENESS AND APPRECIATION OF THE ENVIRONMENT	Individuals recognize that all organisms create waste through the use of natural resources and that waste is cycled through natural systems.	Individuals are aware that human actions alter natural systems through the extraction and processing of natural resources. They recognize the need for sustainable management practices and the potential disruption to natural systems caused by the irresponsible management of waste products.	Responsible individuals recognize that they are an integral part of both natural and built environments and that their attitudes and actions regarding resource use and waste generation have an impact on these environments.
UNDERSTANDING BASIC ENVIRONMENTAL CONCEPTS	Individuals understand that waste is a by-product of life and that natural systems have a limited capacity to process and reuse waste.	Individuals understand that the volume of waste created by humans tends to increase as natural resource consumption and human populations rise. They understand that waste can be reduced, recycled, and disposed through a variety of waste management methods and technologies with both positive and negative effects on the environment.	Individuals understand that through their expectations, consumer choices, and behavior, they have the ability to decrease the use of resources and generation of waste. They understand that reducing waste, reusing materials, recycling, and composting contribute to the sustainable use of natural resources.
TAKING RESPONSIBLE ACTIONS TOWARD THE ENVIRONMENT	In order to conserve natural resources individuals and organizations accept responsibility and take knowledgeable and appropriate action to reduce the consumption of both renewable and non-renewable resources and the production of waste.	Using their knowledge, skills, and ethics, humans design systems for managing and reducing the use of natural resources and the generation of waste in order to achieve a sustainable society.	Using their knowledge, skills, and ethics, responsible individuals analyze and debate the long-term effects, costs, and benefits of their lifestyle choices. They take responsible action by consuming less resources, practicing waste reduction, and applying waste management strategies in their homes, schools, and communities.

Conceptual Matrix for Used Oil

CONTENT / PROCESS	**NATURAL ENVIRONMENT** Natural Systems and Interactions	**BUILT ENVIRONMENT** Human Alterations to Natural Systems	**PERSONAL ENVIRONMENT** Citizens' Roles, Responsibilities, Choices, and Actions
FOSTERING AWARENESS AND APPRECIATION OF THE ENVIRONMENT	Individuals are aware that natural systems form materials over time and that some are renewable and some non-renewable, such as fossil fuels.	Individuals recognize the tradeoffs of using renewable and non-renewable resources to maintain and improve their existence. They are aware of the dependence of human communities upon petroleum products such as motor oil and the effect of extraction, processing, and use of these products on natural systems.	Individuals are aware of their responsibility to conserve and recycle petroleum products, such as motor oil. They recognize that recycling and using recycled motor oil is energy-efficient, economically sound, and environmentally beneficial.
UNDERSTANDING BASIC ENVIRONMENTAL CONCEPTS	Individuals understand how petroleum and other fossil fuels are formed and why they are a finite, natural resource. They understand the basic physical and chemical properties of oil and how it interacts with the environment.	Individuals understand that when petroleum is processed into motor oil, it can be produced, utilized, and recovered in a manner that conserves limited petroleum supplies and reduces possible contamination of groundwater, surface water, soil, and air.	Individuals understand their responsibility to properly store and return used oil for recycling. They know that using recycled oil products helps support the sustainable use of energy resources.
TAKING RESPONSIBLE ACTIONS TOWARD THE ENVIRONMENT	In order to protect the health of the environment, individuals and organizations encourage, monitor, and practice the recycling and reuse of motor oil. In so doing, they reduce the possibility of oil contamination of groundwater, surface water, soil, and air.	Through personal, community, and government action, responsible individuals properly store and return used oil for recycling. They develop sustainable methods for achieving the responsible management of used motor oil to conserve the quality of natural and built environments.	Using their knowledge, skills, and ethics, informed citizens conserve, recycle, and reuse motor oil resources. They take responsible action based on the analysis of benefits, costs, regulatory and statutory requirements, and long-term effects upon the natural and built environment.

Conceptual Matrix Framework Correlations

CONTENT / PROCESS	**NATURAL ENVIRONMENT** Natural Systems and Interactions	**BUILT ENVIRONMENT** Human Alterations to Natural Systems	**PERSONAL ENVIRONMENT** Citizens' Roles, Responsibilities, Choices, and Actions
FOSTERING AWARENESS AND APPRECIATION OF THE ENVIRONMENT	**Science:** energy; patterns of change; scale and structure; stability; and systems and interactions. **History/Social Science:** basic study skills and geographic literacy. **English/Language Arts:** oral language skills; composition skills; and the art of questioning. **Mathematics:** thinking and mathematical ideas. **Visual and Performing Arts:** aesthetic valuing. **Health:** environmental health.	**Science:** energy; patterns of change; and systems and interactions. **History/Social Science:** basic study skills; critical thinking skills; and geographic literacy. **English/Language Arts:** oral language skills; composition skills; and the art of questioning. **Mathematics:** thinking and mathematical ideas. **Visual and Performing Arts:** aesthetic valuing. **Health:** environmental health.	**Science:** energy, and systems and interactions. **History/Social Science:** basic study skills; critical thinking skills; and economic and ethical literacy. **English/Language Arts:** oral language skills; composition skills; and the art of questioning. **Mathematics:** thinking and mathematical ideas. **Visual and Performing Arts:** aesthetic valuing. **Health:** environmental health; and consumer and community health. **Physical Education:** self-image and personal development.
UNDERSTANDING BASIC ENVIRONMENTAL CONCEPTS	**Science:** energy; evolution; patterns of change; scale and structure; and systems and interactions. **History/Social Science:** basic study skills and geographic literacy. **English/Language Arts:** oral language skills; composition skills; and the art of questioning. **Mathematics:** thinking; mathematical ideas; and mathematical tools and techniques. **Visual and Performing Arts:** aesthetic valuing. **Health:** environmental health.	**Science:** energy; patterns of change; and systems and interactions. **History/Social Science:** geographic literacy and critical thinking skills. **English/Language Arts:** oral language skills; composition skills; and the art of questioning. **Mathematics:** thinking; mathematical ideas; and mathematical tools and techniques. **Visual and Performing Arts:** aesthetic valuing. **Health:** environmental health.	**Science:** energy, and systems and interactions. **History/Social Science:** critical thinking skills; economic literacy; and ethical literacy. **English/Language Arts:** oral language skills; composition skills; and the art of questioning. **Mathematics:** thinking; mathematical ideas; and mathematical tools and techniques. **Visual and Performing Arts:** aesthetic valuing. **Health:** environmental health; and consumer and community health. **Physical Education:** self-image and personal development.
TAKING RESPONSIBLE ACTIONS TOWARD THE ENVIRONMENT	**Science:** energy; patterns of change; scale,structure. **History/Social Science:** critical thinking and participation skills; sociopolitical literacy; and civic values, rights, and responsibilities. **English/Language Arts:** oral language skills; composition skills; art of questioning; conventions of language. **Mathematics:** thinking; mathematical ideas; mathematical tools and techniques; and communication. **Visual and Performing Arts:** creative expression and aesthetic valuing. **Health:** environmental health; and consumer and community health. **Physical Education:** social development.	**Science:** energy, and systems and interactions. **History/Social Science:** critical thinking and participation skills; sociopolitical literacy; and civic values, rights, and responsibilities. **English/Language Arts:** oral language skills; composition skills; art of questioning; conventions of language. **Mathematics:** thinking; mathematical ideas; mathematical tools and techniques; and communication. **Visual and Performing Arts:** creative expression and aesthetic valuing. **Health:** environmental health; and consumer and community health. **Physical Education:** social development.	**Science:** energy, and systems and interactions. **History/Social Science:** critical thinking and participation skills; economic, ethical, geographic, socio-political literacy; civic values, rights, and responsibilities. **English/Language Arts:** oral language skills; composition skills; art of questioning; conventions of language. **Mathematics:** thinking; mathematical ideas; mathematical tools and techniques; and communication. **Visual and Performing Arts:** creative expression and aesthetic valuing. **Health:** environmental health; and consumer and community health. **Physical Education:** social development; and self-image and personal development.

Conceptual Matrix Content Standards Correlations

CONTENT / PROCESS	**NATURAL ENVIRONMENT** Natural Systems and Interactions	**BUILT ENVIRONMENT** Human Alterations to Natural Systems	**PERSONAL ENVIRONMENT** Citizens' Roles, Responsibilities, Choices, and Actions
FOSTERING AWARENESS AND APPRECIATION OF THE ENVIRONMENT	**Science:** life and physical sciences. **History/Social Science:** history and geography. **English/Language Arts:** word analysis and systematic vocabulary development; reading comprehension; listening and speaking strategies; and oral and written English language conventions. **Mathematics:** number sense. **Education Code: Chapter 4 Environmental Education, Article 2, Sections 8702 and 8706.**	**Science:** life, earth, and physical sciences. **History/Social Science:** history; geography; chronological and spatial thinking; and historical interpretation. **English/Language Arts:** word analysis and systematic vocabulary development; reading comprehension; listening and speaking strategies; and oral and written English language conventions. **Mathematics:** number sense; and measurement and geometry. **Education Code: Chapter 4 Environmental Education, Article 2, Sections 8701, 8702, 8704, and 8706.**	**Science:** earth and physical sciences. **History/Social Science:** civics; economics; and research, evidence, and point of view. **English/Language Arts:** word analysis and systematic vocabulary development; reading comprehension; listening and speaking strategies; and oral and written English language conventions. **Mathematics:** measurement and geometry; statistics, data analysis and probability; and mathematical reasoning. **Education Code: Chapter 4 Environmental Education, Article 2, Sections 8702, 8704, and 8705.**
UNDERSTANDING BASIC ENVIRONMENTAL CONCEPTS	**Science:** life, earth, and physical sciences; and investigation and experimentation. **History/Social Science:** history and geography. **English/Language Arts:** word analysis and systematic vocabulary development; reading comprehension; literary response and analysis; writing, listening, and speaking strategies; writing and speaking applications; and oral and written English language conventions. **Mathematics:** number sense. **Education Code: Chapter 4 Environmental Education, Article 2, Sections 8702, 8705, and 8706.**	**Science:** life, earth, and physical sciences; and investigation and experimentation. **History/Social Science:** history; geography; economics; chronological and spatial thinking; and historical interpretation. **English/Language Arts:** word analysis and systematic vocabulary development; reading comprehension; and oral and written English language conventions. **Mathematics:** number sense; algebra and function; measurement and geometry; statistics, data analysis and probability; and mathematical reasoning. **Education Code: Chapter 4 Environmental Education, Article 2, Sections 8701, 8702, 8704, 8705, and 8706.**	**Science:** life, earth, and physical sciences; and investigation and experimentation. **History/Social Science:** civics; economics; and research, evidence, and point of view. **English/Language Arts:** word analysis and systematic vocabulary development; reading comprehension; listening and speaking strategies; and oral and written English language conventions. **Mathematics:** algebra and function; measurement and geometry; statistics, data analysis and probability; and mathematical reasoning. **Education Code: Chapter 4 Environmental Education, Article 2, Sections 8702, 8704, 8705, and 8706.**
TAKING RESPONSIBLE ACTIONS TOWARD THE ENVIRONMENT	**Science:** life and earth sciences; and investigation and experimentation. **History/Social Science:** history; geography; civics; economics; research, evidence and point of view; and historical interpretation. **English/Language Arts:** word analysis and vocabulary development; reading comprehension; literary response and analysis; writing, listening, and speaking strategies; and writing and speaking applications. **Mathematics:** number sense. **Education Code: Chapter 4 Environmental Education, Article 2, Sections 8702 and 8706.**	**Science:** life and earth sciences; and investigation and experimentation. **History/Social Science:** history; geography; civics; economics; chronological, spatial thinking; research, evidence and point of view; historical interpretation. **English/Language Arts:** word analysis and vocabulary development; reading comprehension; literary response and analysis; writing, listening, and speaking strategies; and writing and speaking applications. **Mathematics:** algebra and function; measurement and geometry; statistics, data analysis and probability; and mathematical reasoning. **Education Code: Chapter 4 Environmental Education, Article 2, Sections 8701, 8702, 8704, 8705.**	**Science:** life and earth sciences; investigation and experimentation. **History/Social Science:** civics; economics; research, evidence and point of view; and historical interpretation. **English/Language Arts:** word analysis and systematic vocabulary development; reading comprehension; literary response and analysis; writing, listening, and speaking strategies; writing and speaking applications. **Mathematics:** algebra and function; measurement and geometry; statistics, data analysis and probability; and mathematical reasoning. **Education Code: Chapter 4 Environmental Education, Article 2, Sections 8704 and 8705.**

Integrated Waste Management and Used Oil Evaluation Tool

The following environmental education evaluation instrument was used by the project's reviewers to evaluate the curricula. This instrument reflects the recommendations and perspectives of the following documents:

"1992 Science Instructional Materials Evaluation Form," California Department of Education, 1992.

Andrews, Bill, "Background Paper I: Environmental Education Strategy of the California Department of Education," California Department of Education.

Energy Education Evaluation Form - the evaluation tool used for the Water Resources and Energy Resources compendia published in 1992.

Gardella, Ron, Environmental Education Curriculum Inventory (Forms A and B), Northern Kentucky University, Highland Heights, KY, 1992.

Health Framework for California Public Schools (pp.184-195), California Department of Education, 1994.

History-Social Science Framework for California Public Schools (pp. 114-120), California Department of Education, 1988.

Niedermeyer, Fred, "A Checklist for Reviewing Environmental Education Programs" (pp. 46-50), *Journal of Environmental Education*, Vol. 23, 1992.

Olson, Betsy, "Environmental Education Instructional Materials Evaluation Form," California Department of Education (draft).

Science Framework for California Public Schools (Chapter 8, pp. 198-213), California Department of Education, 1990.

Science Resource Center, "Rating System for ME-2," Los Angeles Unified School District.

"The Superintendent's Point of View on Environmental Education," California Department of Education, 1990.

UNESCO, "The Belgrade Charter," UNESCO-UNEP Environmental Education Newsletter, Volume I, Number 1, January 1976.

UNESCO, "The Tbilisi Declaration," October 1977.

I. Criteria For Instructional Materials

A. General Content

1. Are ideas expressed through unifying themes and big ideas, not facts?

2. Is content interdisciplinary?

3. Are students challenged to utilize age-appropriate higher level thinking processes?

4. Are ideas presented logically and connected through the curriculum?

5. Is depth of understanding emphasized (rather than encyclopedic breadth)?

6. Are historical, ethical, cultural, geographic, economic, and sociopolitical relationships addressed?

7. Is the learning process and the acquisition of knowledge shown as connected to the students' lives and society?

B. Presentation

1. Are instructional materials clearly and engagingly written with the main concepts well articulated?

2. Are the roles of environmental ethics, citizenship, and stewardship explored?

3. Do lessons promote respect and caring for the environment, yet are nondogmatic and open to inquiry and differences of opinion?

4. Are personal and societal values and conflicting points of view explored in context?

5. Are instructional materials easy for students to use and understand?

6. Is learning made accessible to limited English proficiency students?

7. Are writings and concepts developmentally appropriate for the designated grade, yet sensitive to individual differences in educational experience and learning mode?

8. Is environmental responsibility modeled in design, underlying philosophy, and suggested activities by the lessons and materials (e.g., using recycled materials, creating minimal amounts of waste, and properly disposing of the waste)?

9. Are there clear linkages between communities of all levels ("thinking globally, acting locally")?

10. Are vocabulary words defined in context and not dominating of learning goals?

11. Is the layout of instructional materials interesting and appealing?

C. Pedagogy

1. Does almost half of the curriculum have students engaged in active learning?

2. Is learning based on the students constructing knowledge through research, discussion, and application to gain conceptual understanding?

3. Are evaluation devices included, appropriate, and aligned with the objectives of outcomes presented? (Highest points for authentic, performance-based assessment devices.)

4. Are instructional materials sensitive to social, economic, and cultural diversity?

5. Do lessons encourage students to develop awareness, knowledge, and strategies for responsible action?

6. Are group/cooperative learning strategies used?

7. Is intergenerational responsibility, linking today's actions with future consequences, implicit in instructional methods?

D. Teacher Usability

1. Are instructions for the teacher clear and concise?

2. Are lesson objectives/outcomes clear and appropriate?

3. Are materials easily integrated into an established curriculum?

4. Is background information for the teacher adequate and accurate?

5. Can the materials be adapted to varied learning environments (large/small classes, of mixed levels, from rural/urban settings)?

6. Are consumable instructional materials of good quality, easily duplicated for student use, and in sufficient quantity to support the objectives?

7. Are equipment/materials listed and reasonably accessible?

8. Do the materials suggest a variety of instructional strategies, expanded learning environments, and resources in the curriculum's design?

9. Is the time required to complete each lesson indicated?

10. Do the materials clearly list the subject discipline(s) integrated into each lesson?

E. Integrated Waste Management Content Questions

Do the materials provide opportunities for students to:

1. acknowledge their personal consumption of natural resources and generation of waste?

2. recognize that their attitudes and actions regarding resource use and waste generation have an impact on both the natural and built environment?

3. appreciate their role as a consumer, empowered to make choices that reduce resource consumption and waste generation?

4. understand that waste is a by-product of life and that natural systems have a limited capacity to process and reuse waste?

5. identify strategies to reduce, reuse, recycle, and compost waste in order to conserve natural resources and decrease waste in landfills?

6. describe all steps in the recycling process, including sorting, collecting, re-manufacturing, and purchasing of recycled products?

7. understand the potential environmental impacts of landfills (groundwater contamination, gas accumulation, closure, etc.) and incineration?

8. acquire personal problem-solving and decision-making skills related to waste reduction, recycling, and disposal, including evaluating the positive and negative consequences of decisions?

9. apply problem-solving and decision-making skills to analyze the long-term effects, costs, and benefits of lifestyle choices in the consumption of resources and generation of waste?

10. practice waste reduction and waste management strategies at home, school, and the community?

F. Used Oil Content Questions

Do the materials provide opportunities for students to:

1. acknowledge their consumption of petroleum products such as motor oil and potential generation of hazardous waste?

2. appreciate the finite, non-renewable nature of petroleum products?

3. recognize that their attitudes and actions regarding the handling, use, and reuse of petroleum products such as motor oil have an impact on both the natural and built environment?

4. appreciate their role as a consumer, empowered to make choices that reduce resource consumption and hazardous waste generation, such as the purchase of recycled products?

5. understand the basic physical and chemical properties of petroleum oil and the interactions of oil with the environment?

6. understand that motor oil can be recycled, re-refined or reprocessed, and reused?

7. know the proper way to store and return used oil for recycling and understand the negative consequences of improper disposal?

8. describe the effects of improper disposal of used motor oil on groundwater, surface water, soil, and air?

9. acquire and apply personal problem-solving and decision-making skills related to recycling and reusing used motor oil?

10. apply problem-solving and decision-making skills to analyze the long-term environmental and economical costs and benefits of automotive care choices, particularly the use, recycling, and reuse of motor oil?

II. Narrative/Miscellaneous

In thinking back on the materials you've just evaluated:

A. Briefly comment on the strengths of the materials.
B. Briefly comment on the weaknesses of the materials.

C. Put a checkmark next to the specific integrated waste management issues that the materials address:

___ source reduction
___ waste reduction
___ reduce, reuse, recycle
___ composting
___ vermicomposting
___ litter prevention
___ natural resource conservation
___ consumerism and economics
___ environmental impact of landfills and incineration

Put a checkmark next to the specific used oil issues that the materials address:

___ recycling of used motor oil
___ oil as non-renewable resource
___ use of recycled motor oil
___ environmental impact of improper disposal

D. Using a percent, estimate how much of the materials are specific to IWM: ____ % used oil: ____%

E. Other comments

F. Would you use the materials in your class? (Circle one.)

Absolutely
Probably
Maybe
Not likely
No chance

G. Besides English, in what other languages are the materials available? If not entirely translated, what parts are?

H. Do the materials contain a listing of resources, such as in an appendix or teacher resource guide?

I. Is there evidence that the curriculum was field tested? Briefly describe the process.

J. Place a checkmark in the appropriate box across from each discipline to indicate the amount of emphasis each is given in the curriculum.

	None	Some	A Lot	Major
Science				
History/social science				
Health				
Mathematics				
Visual/performing arts				
Language arts				
Industrial tech./voc. ed.				
Foreign language				

Supplemental Materials

Although the following materials did not qualify as formal curricula, each may serve as a useful supplemental resource.

A District-wide Approach to Recycling: A Guide for School Districts, California Integrated Waste Management Board, 8800 Cal Center Drive, Sacramento, CA 95826 (916) 255-2385. Comprehensive guide to establishing school district recycling programs.

Alameda County Recycling Guide, Alameda County Waste Management Authority & Source Reduction and Recycling Board, 777 Davis Street, Suite 200, San Leandro, CA 94577 (510) 639-2498. Thirty-six page guide to understanding recycling, the handling of household hazardous waste, automotive products, and other products, the exchange of material and reduction of unwanted mail, and recycling services available in Alameda County.

Aluminum Beverage Cans, The ABCs of Environmental Education, Can Manufacturers Institute, 1625 Massachusetts Avenue, NW, Washington, DC 20036 (888) 226-2368. Folder of materials including an intermediate level curriculum, chart and brochure on the National Fourth Grade Recycling Competition, "The Great Aluminum Can RoundUp." Seven lesson plans use the aluminum beverage can as a case study in environmental education.

Bottle Biology, Kendall Hunt Publishing Company, 4050 Westmark Drive, P.O. Box 1840, Dubuque, IA 52004 (800) 228-0810. Twenty different activities involving the reuse of two-liter plastic beverage containers are thoroughly described in this 127 page book. Bottle Biology includes detailed instructions on preparing the bottle, as well as background information, student worksheets, and references.

Classroom Activities, Maine State Planning Office, Waste Management and Recycling Program, State House Station 38, Augusta, ME 04333 (207) 287-8050. This compilation of activities from other curricula focuses on waste management, consumer behavior, and recycling. Multidisciplinary approaches include the use of skits, poems, simulation studies, and role-playing.

Collecting and Recycling Used Motor Oil, American Petroleum Institute, 1220 L Street, NW, Washington, DC 20005 (202) 682-8118. Brochure provides a brief overview of the recycling of used motor oil and steps to take when collecting used motor oil.

Community Activity Sheets, Steel Recycling Institute, Foster Plaza, Number 10, 680 Andersen Drive, Pittsburgh, PA 15220 (800) 876-7274. Two-sided masters allow students to be led through activities and games that focus on the recycling of all types of materials including steel.

Compost Gin Card Game, Tall Oak Productions, 3517 Virginia, Kansas City, MO 64109 (888) 484-4477. Set of cards for four players teaches composting concepts and math skills as players gain or lose points attempting to make compost.

Composting Across the Curriculum, Marin County Office of Waste Management, 3501 Civic Center Drive, Room 403, San Rafael, CA 94903 (415) 499-6647. This teacher's guide to composting applies science, history, math, and communication skills as students discover how to undertake a backyard composting or vermicomposting project. Numerous activities connect composting to the curriculum, as students explore soil and decomposition and learn about solid waste.

Composting in the Classroom, Kendall/Hunt Publishing Company, 4050 Westmark Drive, P.O. Box 1840, Dubuque, IA 52004-1840 (800) 228-0810. Designed for teachers interested in guiding composting research projects undertaken by high school students. Contents provide an overview of the science of composting, instructions for building compost systems, and specific information regarding scientific techniques for monitoring the composting process and testing the properties of finished compost.

Composting Matters, Environmental Hazards Management Institute, 10 Newmarket Road, Durham, NH 03824 (603) 868-1496. Twelve page coloring and activity book.

Composting to Reduce the Waste Stream, Cornell Cooperative Extension, Resource Center, 7 Business & Technology Park, Cornell University, Ithaca, NY 14850 (607) 255-2080.

Composting: Waste to Resources, Cornell Cooperative Extension, Resource Center, 7 Business & Technology Park, Cornell University, Ithaca, NY 14850 (607) 255-2080. This folder of materials is designed for 4-H leaders, camp counselors, and teachers interested in establishing composting projects with youth. Thirty-six page teacher's guide is accompanied by a compost project record and plans for eleven different composting systems.

California Conservation Corps (CCC) Used Oil Recycling Education **Program** , California Conservation Corps, 1719 24th Street, Saramento, CA 95816 (916) 341-3152. School presentations on used oil recycling are available throughout the state for high school classes in driver's education, science, and auto shop.

Creative Reuse Extravaganza, The East Bay Depot for Creative Reuse, Inc., 6713 San Pablo Avenue, Oakland, CA 94608 (510) 547-6470. Creative Reuse Extravaganza: A Festival of Games, Crafts, and Fun using Discarded Materials is a guide on how to host such an extravaganza whose goal is to divert material away from the waste stream and reuse it creatively. Recommendations on how to organize the event, obtain the discarded materials, establish the stations, and conduct the activities are offered.

Do It Right recycling used oil brochure, City of Fremont, Environmental Services Division, 39550 Liberty Street, PO Box 5006, Fremont, CAA 94537-5006 (415) 494-4740. Succinct brochure answers numerous questions about the importance of and procedure for recycling used motor oil.

Do the Rot Thing, a Teacher's Guide, Alameda County Waste Management Authority and Source Reduction and Recycling Board, 777 Davis Street, Suite 200, San Leandro, CA 94577 (510) 614-699. Composting and vermicomposting activities are provided for grades K–12, beginning with introductory explorations (i.e. "What is Biodegradable?"), basic principles of composting and vermicomposting, and concluding with student action projects to spread the word about composting, and poetry and song selections. Resource list and appendices are also featured.

Don't Let a Good Thing Go To Waste, Plastic Bag Information Clearinghouse, 1817 East Carson Street, Pittsburgh, PA 15203 (800) 438-5856. Supplementary lessons for grades 2-5 explore the concept of trash and landfills, as well as strategies to reduce waste. Worksheets, spelling lists, quiz, reprints of articles, and plastic bag for use in the activities are provided.

Drink Box Recycling materials (brochure, posters), Aseptic Packaging Council, 2111 Wilson Boulevard, Suite 700, Arlington, VA 22201 (703) 351-5062. How-to guide to the collection and recycling of aseptic drink boxes is accompanied by one poster that illustrates the process of recycling drink boxes and another that interprets the benefits of using and recycling aseptic packages.

Earth Cycles, Steel Recycling Institute, Foster Plaza, Number 10, 680 Andersen Drive, Pittsburgh, PA 15220 (800) 876-7274. The Earth Cycles Activity Guide is designed for use by teachers of grades 3-5 or youth advisors and student leaders in grades 9-12. Solid waste management is explored through such activities as designing a space food eating system to minimize waste, dismantling a non-working toaster to identify non-metal and metal parts for scrap, and playing a multi-material recycling game.

Easy Green, A Handbook of Earth-Smart Activities and Operating Procedures for Youth Programs, American Camping Association, 5000 State Road 67 North, Martinsville, IN 46151-7902 (800) 428-2267. Defines operating procedures for establishing precycling, recycling, water and energy conservation programs, composting, and managing hazardous materials for camp and recreation programs.

Eco-Inquiry, Kendall / Hunt Publishing Company, 4050 Westmark Drive, P.O. Box 1840, Dubuque, IA 52004 (800) 228-0810. Designed for upper elementary and middle grade, one of the modules in this guide to ecological learning experiences focuses extensively on decomposition and soil dynamics. Cooperative learning and authentic assessment are emphasized throughout all activities.

Environmental Connections Resource Guide, Central Contra Costa Solid Waste Authority, 1280 Civic Drive, Suite 314, Walnut Creek, CA 94596 (925) 906-1801. Available for Contra Costa teachers, fifty-nine page curriculum guide explores solid and household hazardous waste, offers information on local service providers, and offers classroom lesson plans.

Environmental Teaching Guides: Lesson Plans on Air Quality, Water Quality, Recycling and Waste Management for Grades K-6, Volumes I and II, Texas Natural Resource Conservation Commission, MC-113, PO Box 13087, Austin, TX 78711 (512) 239-0012. Compilation of lesson plans on four environmental topics, including recycling and waste management.

EnviroScape Landfill Model, EnviroScape Models, JT & A, Inc., 14524-F Lee Road, Chantilly, VA 20151 (703) 631-8810. Three-dimensional landfill model demonstrates the working of a modern landfill system, including leachate accumulation, collection and management in a landfill cell, use of detection and collection systems, and closure of a completed landfill cell. Model comes with all necessary supplies and user's guide.

Garbology: Activities for Students K through 12, Office of Environmental Education, Florida Gulfcoast University, 1311 Paul Russell Road, Suite 210A, Tallahassee, FL 32301 (850) 487-7900. Defined as a strategy for practicing reuse and recycling, "garbology" utilizes plastic beverage bottles, plastic containers, egg cartons, and other ordinary materials to create growing environments, mini-landfills, Cartesian diver demonstrations, and container gardens.

Grime Fighters Activity Poster, Plastic Bag Information Clearinghouse, P.O. Box 2811, Pittsburgh, PA 15230 (800) 438-5856. Five litter prevention activities are described on this colorful poster accompanied by a master "Grime Fighter" student handout.

Hands On Plastics: A Scientific Investigation Kit, American Plastics Council, 1801 K Street, Suite 701-L, Washington, DC 20006 (800) 243-5790. Designed for middle school students, this kit contains a teacher guide with background information and lesson plans on the history, coding, chemical structure, and recycling or incineration of plastics and polymers; samples of recycled plastic resins; and labeled plastic items packaged in a carrying case. Video, "The Busy, Busy Planet," is also available.

Healthy Environment – Healthy Me, Resource Center of Environmental and Occupational Health Sciences Institute, Public Education and Risk Communication Division, 681 Frelinghuysen Road, P.O. Box 1179, Piscataway, NJ 08855 (908) 932-0110. Interdisciplinary environmental and occupational health curriculum offers grade-specific lesson plans. The kindergarten unit enables students to understand the concept of environment, the first grade unit explores recycling; the second grade unit explores the meanings of health and safety, the third grade further explores health and safety issues, the fourth grade unit explores water pollution, the fifth grade unit explores air pollution, and the sixth grade unit explores solid waste management.

Kansas Don't Spoil It Activity Book and Lessons in Solid Waste Management K- 3, Kansas Department of Health and Environment, Division of Environment, Bureau of Waste Management, Forbes Field, Building 740, Topeka, KS 66620 (785) 296-1600. A thirty-one page "Don't Spoil It Activity Book developed in conjunction with the state of Kansas' "Don't Spoil It!" Week, and lesson packets for grades K-3 and 4-8 focus on solid waste management issues.

Less Waste in the First Place, Flexible Packaging Educational Foundation, 1090 Vermont Avenue, N.W., Suite 500, Washington, DC 20005

(202) 842-3880. Booklet of six lesson plans is accompanied by videotape and Source Reduction poster. Lessons focus on packaging and source reduction using modern package design as the context. Video, "Less Waste in the First Place," is also available.

Let's Recycle Coloring Book, and curriculum packages for grades K-3 and 4-6. City of Orange, Department of Public Works, Recycling Office, P.O. Box 449, 300 East Chapman Avenue, Orange, CA 92666 (714) 744-2208. Bilingual nineteen page coloring book is accompanied by a packet of lesson plans for grades K-3. Packet of lesson plans and student handouts are also available for grades 4-6.

Let's Recycle Together, Steel Recycling Institute, 680 Andersen Drive, Pittsburgh, PA 15220 (800) 876-7274. Steel can finger puppet ROSCOE (Recycle Our Steel; Conserve Our Environment) is accompanied by a songs, script, and set of posters depicting scenes from a recycling play for students ages 4-7.

Little Shop of Horrors teacher's manual and student manual, City of Anaheim Fire Department, 201 South Anaheim Boulevard, Suite 300, Anaheim, CA 92805 (714) 765-4154 (levels 9-12). Designed for high school automotive shop classes, these manuals provide a range of activities and information regarding oil, including environmental, healthy, and safety issues, laws and regulations, the handling and recycling of used oil, and applicable careers.

NEED Museum of Solid Waste and Energy, National Energy Education Development (NEED) Project Headquarters, 102 Elden Street, Suite 15, Herndon, VA 20170 (703) 471-6263. For grades 4-12, this manual offers guidelines for the creation of eight museum-style exhibits and station guides based on solid waste and energy topics, including the recycling of various products, landfilling, and burning of waste.

Packaging and the Environment, Real-World Mathematics through Science, Addison-Wesley Longman, 1 Jacob Way, Reading, MA 01867 (800) 872-1100. One is a series of middle school level modules, *Packaging and the Environment* challenges students to apply mathematical and scientific skills much in the manner as a packaging engineer in the redesign of a cereal box to reduce potential waste.

Popsi: Secrets of the Dump Environmental Education Program, Post-Consumer Products, 2725 West Coast Highway, Newport Beach, CA 92663 (949) 646-0229. The Popsi Project consists of a binder of background information and K-3 lessons, the "Popsi" doll manufactured out of fabric made from recycled PETE plastic, classroom set of student booklets, samples of plastic pellets and fiber, song cassette, and packet of sunflower seeds. The project is designed to illustrate the complete recycling process: reducing, reusing, recycling, and remanufacturing products from recycled material.

Project Create, The East Bay Depot for Creative Reuse, Inc. 6713 San Pablo Avenue, Oakland, CA 94608 (510) 547-4733. Compiled in a binder, *Project Create* activities encourage students to apply their artistic talents in the creation of art using discarded materials diverted from a landfill. Introductory activities apply math and science in the analysis of garbage; follow-up activities include the construction of kaleidoscopes, masks, photo-slide pins, shadow puppets, and tin-can recycled paper.

Project Seasons, Shelburne Farms, Shelburne, VT 05482 (802) 985-8686. Included in this collection of interdisciplinary activities for elementary students is an entire chapter on soil, decomposition, and worms, including creative observations, exhibits ("Goldilocks and the Three Beans"), and worksheet masters.

Recycling 35 mm Canisters for the Teaching of Science, Creative Ventures, Inc., P.O. Box 2286, West Lafayette, IN 47906. Hands-on activities and experimental investigations are presented reusing 35 mm film canisters. Projects primarily involve the physical sciences and include such activities as creating pulleys, siphons, and pendulums, and studying static electricity, density, and buoyancy.

Supplemental Materials

Recycling How -To Kit, Tree Musketeers, 136 Main Street, Suite A, El Segundo, CA 90245 (310) 322-0263. Folder of recycling brochures, literature, and "Kid Power How -To Kit for Young Activists" activity guide detailing steps to organize a community event or environmental project.

Recycling in America, Waste Policy Center, 211 Loudon Street, SW, Leesburg, VA 22075 (703) 777-9800. Report summarizes the current (1996) status of recycling in the United States and describes national trends in recycling operations and the recycling of key materials.

Recycling Slide Show, Recycle America, Waste Management, Inc., 3003 Butterfield Road, Oak Brook, IL 60521. Extensive slide presentation (176 slides) introduces topics of recyclable materials, landfills, collection, policy, and education.

Recycling Two-Liter Bottles, Creative Ventures, Inc., P.O. Box 2286, West Lafayette, IN 47906. Hands-on activities and experimental investigations are presented reusing two-liter plastic beverage containers. Projects focus on both the biological and physical sciences, including the construction of terraria, water clock, pendulum, and flashlight. Detailed instructions and background information are provided.

Recycling With Earthworms, Resource Conservation District, 332 South Juniper Street, Suite 110, Escondido, CA 92025 (760) 745-2061. This earthworm manual (100 p.) offers information on soil science, worm biology, construction and maintenance of worm bins is accompanied by a 30-minute video, "The Red Wiggler Connection."

Recycling: Mining Resources from Trash, Cornell Cooperative Extension, Resource Center, 7 Business & Technology Park, Cornell University, Ithaca, NY 14850 (607) 255-2080. Folder consisting of five posters and a thirty-three page booklet provides an overview of waste disposal, the recycling of paper, glass, metal, plastic, organic waste, and motor oil, and eleven classroom activities.

Reduce, Reuse, Recycle School Activity Guide, County of Santa Cruz and Ecology Action, Inc., PO Box 1188, 125 Water Street, Santa Cruz, CA 95061 (831) 426-5925. Compilation of lesson plans, mazes and word searches, fact sheets, and additional resources including classroom presentations and composting projects.

San Francisco Recycling Guide, San Francisco Recycling program, 1145 Market Street, Suite 401, San Francisco, CA 94103 (415) 554-6193. Multilingual brochure describes strategies to reduce, reuse, and recycle in San Francisco.

School Recycling Programs, A Handbook for Educators, US Environmental Protection Agency, National Center for Environmental Publications and Information, PO Box 42419, Cincinnati, OH 45242 (800) 424-9346. Twenty-four page booklet describes options for school recycling programs, along with step-by-step instructions on how to establish one.

$eeing Green Through Waste Prevention, A Guide for School Districts, California Integrated Waste Management Board, 8800 Cal Center Drive, Sacramento, CA 95826 (916) 255-2385. A how-to guide illustrating waste prevention practices that school districts have found effective in reducing waste and cutting costs.

Setting Up a Solid Waste Recycling Program in Schools, Waste Policy Center, 211 Loudon Street, SW, Leesburg, VA 20175 (703) 777-9800. Sixty-one page manual offers detailed guidelines for establishing a recycling program on campus, including identifying markets for recyclables, selecting a recycling coordinator, and launching the campaign through educational activities.

Supplementary Curriculum on Used Motor Oil, City of Modesto Engineering and Transportation Department, PO Box 642, Modesto, CA 95353 (209) 577-5453. Designed for grades 4-12, this used oil cur-

riculum provides extensive background specific to Modesto and activities that explore the characteristics of oil and consequences of oil disposal. Lessons make use of groundwater models and local Modesto resources.

Teachers Guide to the Four R's, Alameda County Recycling Guide, Alameda County Waste Management Authority & Source Reduction and Recycling Board, Schools Education program, 777 Davis Street, Suite 200, San Leandro, CA 94577 (510) 614-1699. Classroom lessons for grades K-12 introducing the concept of 4 R's (reduce, reuse, recycle, and rot). Other resources available to Alameda County teachers include a compost poster, fourteen minute video, "Kids Talkin' Trash," compost bins and worm boxes, field trips, resource library, and "Do the Rot Thing" Teachers Guide, described herein.

Texas School Recycling Guide, Texas Natural Resource Conservation Commission, MC-113, PO Box 13087, Austin, TX 78711 (512) 239-0012. Booklet outlines the procedures for setting up and maintaining a school recycling program. Brochure entitled "Eight Tips to Involve Elementary Students in School Recycling" is also available.

The Adventures of Garbage Gremlin, US Environmental Protection Agency, Office of Solid Waste, 401 M Street, SW, Washington, DC 20460. Sixteen page comic-style booklet is designed to accompany the "Let's Reduce and Recycle" Curriculum and "School Recycling Programs: A Handbook for Educators" publications.

The Family Ecology Guide, a Program for Encouraging Sustainable Lifestyles, Alameda County Office of Education, Media Sales, 313 West Winton Avenue, Hayward, CA 94544 (510) 887-0152. Focusing on the solid waste dilemma, the Family Ecology Guide provides background information and home- and community-based activities involving parents and children working together to reduce waste. Detailed guidance is offered on the establishment of a Family Ecology Program, training sessions, and School Ecology Week. Spanish translations of take-home sheets are also provided.

The Solid Waste Mess: What Should We Do With the Garbage? (EIF), Kendall Hunt Publishing Company, 4050 Westmark Drive, P.O. Box 1840, Dubuque, IA 52004 (800) 228-0810. This set of booklets are designed for public and school discussions regarding the often controversial issue of solid waste management. The issue is presented from three perspectives, each viewing the issue and the solution differently.

The Worm Cafe: Mid-Scale Vermicomposting of Lunchroom Wastes, Flower Press, 10332 Shaver Road, Kalamazoo, MI 49024 (616) 327-0108. This recently released book serves as a manual for schools, small businesses, and community groups interested in establishing and maintaining a worm bin to manage food waste and implement a successful project-based learning program.

Trash Facts IV, Recycling in America, Environmental and Public Health Aspects of Reusable and Disposable Foodservice Packaging, Waste Policy Center, 211 Loudon Street, SW, Leesburg, VA 20175 (703) 777-9800. Reference sheet of recent data on the management of trash (landfilling, combustion, and recycling), state recycling goals, and percentage breakdown of municipal solid waste contents.

Waste Management Resources for Solano Co. Teachers, Solano Co. Department of Environmental Management, 601 Texas Street, Fairfield, CA 94533 (707) 421-6765. This booklet is designed to help Solano County teachers locate resources; arrange for field trips, in-service training, and in-class speakers; and utilize reuse centers.

Waste Wise: Concepts in Waste Management: A Resource Guide for Teachers Using Concepts of Critical Thinking and Decision Making, Information Clearinghouse, Aseptic Packaging Council, P.O. Box 3794, Washington, DC 20007 (800) 277-8088. Student handouts and supplementary lessons appropriate for multiple grade levels examine waste volume, options for handling waste, decisions on packaging, life cycle of product packaging, and the use of aseptic package.

Supplemental Materials

What about Waste? Cornell Cooperative Extension, Resource Center, 7 Business & Technology Park, Cornell University, Ithaca, NY 14850 (607) 255-2080. Booklet for 4-H leaders, teachers, parents, and camp counselors designed to teach students about waste and waste reduction through five activities. List of vocabulary, additional resources, and project evaluation are also provided.

Wonderful World of Wrigglers, Food Works, 64 Main Street, Montpelier, VT 05602 (802) 223-1515. This is a curriculum guide that explores the relationship between earthworms, soil, and ecological sustainability. Includes instructions for building an earthworm compost bin, studying worm anatomy and behavior, and linking activities to environmental education concepts.

Worm Acres, Insect Lore, P.O. Box 1535, 132 South Beech, Shafter, CA 93263 (800) 548-3284. Complete vermicomposting kit including bin, certificate for worms, starter compost bedding, airflow filter, sprayer, instructions, and study guide.

Wormania!, Flower Press,10332 Shaver Road, Kalamazoo, MI 49024 (616) 327-0108. Twenty-six minute video captures the lifestyle and life cycle of worms, explains their role in soil ecology, and defines the steps to take in vermicomposting. Video can be accompanied by the *Wormania* teaching guide.

Worms Eat My Garbage, Flower Press,10332 Shaver Road, Kalamazoo, MI 49024 (616) 327-0108. How-to book to set up and maintain a worm composting system with specific guidelines on the construction of worm bins and the care and feeding of worms.

Worms Eat Our Garbage, Flower Press,10332 Shaver Road, Kalamazoo, MI 49024 (616) 327-0108. Subtitled “Classroom Activities for a Better Environment,” this two hundred fourteen page curriculum guide and activity book offers classroom activities related to worms and vermicomposting.

Worms, Worms, and Even More Worms, A Vermicomposting Guide for Teachers, Integrated Waste Management Board, 8800 Cal Center Drive, Sacramento, CA 95826 (916) 255-2385. The basics of vermicomposting are explored in detail and followed by classroom and lab activities, case studies, and several appendices including plans to biuld a worm bin and suppliers of worm bins and worms.

Yes I Can!, Steel Recycling Institute, 680 Andersen Drive, Pittsburgh, PA 15220 (800) 876-7274. Accompanied by a K-3 teacher’s guide, this fifteen-minute video tells the story of a juice can, bottle, and newspaper that undergo the process of being purchased, used, thrown away, found, and ultimately recycled into new products.

Software

The following list of software focuses on integrated waste management topics.

Choices, Choices: Kids and the Environment, Mac/Win, Tom Snyder Productions, 80 Coolidge Hill Road, Watertown, MA 02172 (800) 342-0236.

Decisions, Decisions: the Environment, Mac/Win, Tom Snyder Productions, 80 Coolidge Hill Road, Watertown, MA 02172 (800) 342-0236.

EarthAware, Mac/Win, EnviroAccount Software, 605 Sunset Court, Davis, CA 95616.

Earth Explorer, Mac/Win, Sunburst Communications, Inc., 101 Castleton Street, P.O. Box 100, Pleasantville, NY 10570 (800) 321-7511.

EcoExpert Environmental Science Series (Case of the Polluted Playground), IBM, Texas Learning Technology Group, P.O. Box 2947, Austin, TX 78768 (800) 580-8584.

EcoExpert Environmental Science Series (Fuel Site Quandry), IBM, Texas Learning Technology Group, P.O. Box 2947, Austin, TX 78768-2947 (800) 580-8584.

Garbage Tale: An Environmental Adventure, laserdisc, SVE/Churchill Media, 6677 North Northwest Highway, Chicago, IL 60631-1304 (800) 829-1900.

Introduction to General Environmental Studies: Waste, Mac/IBM, COMPress. Available from Education Software Institute, 4213 South 94th Street, Omaha, NE 68127 (800) 955-5570.

Kids' Network: Too Much Trash?, Mac/Win, National Geographic Society, Educational Media Division, P.O. Box 98018, Washington, DC 20090 (800) 368-2728.

Our Environment, Mac/Win, Sunburst Communications, Inc., 101 Castleton Street, P.O. Box 100, Pleasantville, NY 10570 (800) 321-7511.

Roscoe's Totally Cycled World, Mac/Win, Steel Recycling Institute, 680 Andersen Drive, Pittsburgh, PA 15220 (800) 876-7274.

Science and the Environment, Mac/Win, DOS, UNIX, Environmental Media Corporation, P.O. Box 99, Beaufort, SC 29901 (800) 368-3382.

SimEarth Classic, Mac/Win, Maxis, 2121 North California Blvd., Suite #600, Walnut Creek, CA 94596 (510) 933-5630.

Think Earth/Captain Energy and His EcoAdventures! Mac/Win, MultiMedia Associates. Available from Education Software Institute, 4213 South 94th Street, Omaha, NE 68127 (800) 955-5570.

Trash Goes to School, IBM, Cornell Cooperative Extension, Resource Center, 7 Business & Technology Park, Cornell University, Ithaca, NY 14850 (607) 255-2080.

Internet Addresses

The following on-line addresses offer information concerning integrated waste management issues and projects.

Composting:

California Integrated Waste Management Board
www.ciwmb.ca.gov/organics/

Composting
www.msue.msu.edu/msue/imp/mod02/01500589.html

Composting for Home Gardens
www.ces.ncsu.edu/hil/hil-8100.html

Concordia Student Union
www.cug.concordia.ca/~csu/handbook/enviro/composting.html

Cornell University/ Cornell Composting
www.cals.cornell.edu/dept/compost/

Cornell Composting/ Composting in Schools
The Cornell Waste Management Institute, Cornell Center for the Environment
www.cfe.cornell.edu/compost/schools.html

Enviro Care of America
www.envirocare.net/simple.html

Home Composting the Easy Way
www.zapcom.net/~compost/

Michigan State University Extension/ Backyard Composting
www.gvrd.bc.ca/waste/bro/swbckyr.html

Missouri Department of Natural Resources
www.fsinfo.cs.uni-sb.de/~fritsch/Papers/env/compost/compost.html

North Carolina Cooperative Extension Service (*Composting for Home Gardens)*
www.ces.ncsu.edu/hil/hil-8100.html

Planet Natural
www.planetnatural.com/composting.html

Rot Web
www.net.indra.com/~topsoil/Compost_Menu.html

The Compost Recipe
www.gov.nb.ca/environm/comucate/compost/nurep.htm

Veggies Unite!/ What Not to Compost
www.vegweb.com/composting/what-not.shtml

The Compost Resource Page
www.oldgrowth.org/compost/

The Master Composter
www.mastercomposter.com

Environmental Education:

California Department of Education, Office of Environmental Education
www.cde.ca.gov/cilbranch/oee/

California Environmental Education Resource Guide
www.cde.ca.gov/cilbranch/oee/ceerg/cover.html

Internet Addresses

E Patrol, E Patrol Foundation
www.sprint.com/epatrol/

Educational Resources Information Center / Clearinghouse for Science, Mathematics, and Environmental Education (CSMEE)
www.ericse.org

EE Link
www.eelink.net/html/easy_search.html

ENC Resource Finder, Eisenhower National Clearinghouse
www.enc.org.

Environmental Education and Training Partnership (EETAP)
www.eetap.org

Environmental Literacy Council
www.enviroliteracy.org

Generation Earth
www.generationearth.com

Harbinger California Environmental Directory
www.nceet.snre.umich.edu/HFED.html

National Consortium for Environmental Education and Training
www.nceet.snre.umich.edu/nceet.html

North American Association of Environmental Education
www.naaee.org

Searching SEEK (Sharing Environmental Education Knowledge)
www.seek.state.mn.us/search/search.cfm/

The Environmental Education Network
www.envirolink.org/enviroed/

The Global Thinking Project, Georgia State University
www.teaparty.terc.edu/comweb/globalthinking/home/glothinking.htm

Recycling:

40 Tips to Go Green
www.ceres.ca.gov/ceres/calweb/40tips.html

America Recycles Day
www.americarecyclesday.org/ard2/index.asp

California Inregrated Waste Management Board
www.ciwmb.ca.gov/recycle/

Can Manufacturers Institute
www.cancentral.com

Department of Conservation: California Beverage Container Recycling and Litter Reduction Act
www.consrv.ca.gov/dor/index.htm

Environmental Systems of America (Recycling Factoids)
www.envirosystemsinc.com/factoids.html

Environmental Web Directory
www.webdirectory.com/Recycling/

Global Recycling Network
www.grn.com/

GreenTeam of San Jose
www.greenteam.com/faq.html

Internet Addresses

Mississippi State University: Paper Recycling
www.ext.msstate.edu/pubs/pub1670.htm

Natural Resource Defense Council (Garbage and Recycling)
www.mail.igc.apc.org/nrdc/bkgrd/gaten.html

Pennsylvania Used Oil Recycling Information Center
www.dep.state.pa.us

Popsi Environmental Education Program
www.popsi.com

Recycle City, Environmental Protection Agency Region 9
www.epa.gov/region09/recyclecity/

Recycling
www.iit.edu/~smile/bi9015.html

Recycling Site in the United Kingdom
www.enviroweb.org/greenaction/gec/recycling.html

Recycling Slide Show, Recycle America
www.crest.org/environment/gotwh/general/recycle-slides/index.html

Recycler's World
www.recycle.net/

Ring Leader Recycling
ITW-Hi-cone
www.ringleader.com/menu/program.html

Sappi Fine Paper of North America
www.warren-idea-exchange.com/graphic/e4a.html

Steel Recycling Institute
www.recycle-steel.org

Think Earth
www.edspecialists.com

TreePeople: Generation Earth Program
www.generationearth.com

United States Environmental Protection Agency
www.epa.gov/epaoswer/non-hw/recycle/index.htm

Wisconsin Department of Natural Resources/ EE for Kids
www.dnr.state.wi.us/eek

Youth Recycling
www.unesco.org/youth/recycle.htm

Source Reduction and Landfills:

Aseptic Packaging Council
www.aseptic.org

BFI Company/ Landfills
www.bfi.com/landfill/index.html

County of Stanislaus, the *Citizen's 3 R's of Garbage*
www.co.stanislaus.ca.us/er/3rsgarb.htm

Conservation Education Program
www.fs.fed.us/outdoors/nrce/welcome.htm

Do It Yourself: Stop Junk Mail and Phone Calls
www.obviously.com/junkmail/

Environmental Industry: *Professionally Managed Landfills: a Vital Environmental Resource*
www.envasns.org/eii/garbage/landfills/landfills.htm

Internet Addresses

EPA Resource Guide of Solid Waste Educational Materials
US Environmental Protection Agency
www.epa.gov/epaoswer/general/bibligr/educatn.htm

Flexible Packaging Educational Foundation
www.flexpack.org

Guideline for Environmentally Responsible Packaging
www.corp.hp.com/publish/talkpkg/enviro/environm.htm

HP Externally Packaging Web Site Guideline for Environmentally Responsible Packaging
www.corp.hp.com/publish/talkpkg/enviro/environm.htm

It's Your Choice
www.cygnus-group.com/packaging/Flex_Pkging.html

Let's Talk Trash
www.herald-sun.com/cchamber/magz/396/bt39602.html

Michigan State University Extension, *Waste Reduction – For Home and Office*
www.msue.msu.edu/msue/imp/mod02/01500569.html

Newton's Apple: Garbage
KTCA Twin Cities Public Television/NSTA
www.ktca.org/newtons/11/garbage.html

Plastic Bag Association/Plastic Bag website
www.plasticbag.com

State of Iowa/ Energy Education
www.state.ia.us/government/dnr/organiza/egd/chap7.htm

The Problems of Landfilling Waste
www.surreycc.gov.uk/planning/recycling/recyc3.html

US Department of Interior
The Natural Resources Library
www.ios.doi.gov/nrl/

US EPA Office of Solid Waste: Safer Disposal for Solid Waste - The Federal Regulations for Landfills
www.epa.gov/epaoswer/non-hw/muncpl/safedis.htm

US EPA Office of Solid Waste
www.epa.gov/osw/students.htm

Wisconsin Department of Natural Resources/*EEK: What a Waste?* and *My Ton of Trash*
www.dnr.state.wi.us/org/caer/ce/eek/earth/waste.htm
www.dnr.state.wi.us/org/caer/ce/eek/teacher/tontrash.htm

Vermicomposting:

Alameda County Waste Management Authority and Alameda County Source Reduction and Recycling (Vermicomposting)
www.stopwaste.org/wormcomp.htm

Alaska's Can-O-Worms
www.can-o-worms-alaska.net/

Biological HomeGrown Farms
www.freeyellow.com/members/biohomegf/index.html

California Integrated Waste Management Board
www.ciwmb.ca.gov/organics/worms/wrmsuply.htm
www.ciwmb.ca.gov/schools/classrooom/worms.htm

Canada's Office of Urban Agriculture/City Farmer
www.cityfarmer.org/

Internet Addresses

Classroom Vermicomposting
www.interware.net/~levine/worms/

Happy D Ranch worm farm
www.happydranch.com/whyverm.html

Keith's Red Worm Ranchos
www.swimall.com/swimall/newpage13.htm

Lake County Worm Farm, Inc.
www.pacific.net/~wormfarm/

Missouri Department of Natural Resources Solid Waste Program
www.dnr.state.mo.us/deg/swmp/worm1.htm

New Jersey Online
www.nj.com/yucky/worm/

Progressive Organic Solutions
www.vermicentral.com/

Sale of Worms and Worm Castings
www.worm-publications.com/growers/oasiswfs.html

Squirmy Wormz Farm, Australia
www.dragnet.com.au/~lindah/worms.html

University of Nebraska Cooperative Extension
www.ianr.unl.edu/ianr/lanco/enviro/pest/factsheets/vermich.html

US Worms (Mr. Ken's World)
www.deepsummer.com/usworms/links/

VermiCo's Casting Call
www.vermico.com/news.html

Vermiculture, North Carolina State University
www2.ncsu.edu/bae/programs/extension/publicat/wqwm/ebae202_94.html

Wiggling N Vermicomposting
www.home.att.net/~tnoland/

Worm Digest
www.wormdigest.org/

"Worms for Home Composting"
www.poulson.force9.co.uk/worms/

Worm Woman's Web Site
www.wormwoman.com/frameindex.html

Worm World
www.globalclassroom.org/worms.html

Waste and Resource Management:

American Petroleum Institute
www.api.org/tchrmaterial.htm

California Integrated Waste Management Board
www.ciwmb.ca.gov

CERES (California Environmental Resources Evaluation System)
ceres.ca.gov/education/

US Department of the Interior, Natural Resources Library
www.ios.doi.gov/nrl/

US Environmental Protection Agency
www.epa.gov/